

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)
2. (Previously Presented) The semiconductor integrated circuit according to claim 9 wherein the testing arrangement further comprises an enable input, the enable input being arranged to prevent writing to the memory after writing the selected bit pattern to the memory.
3. (Currently Amended) The semiconductor integrated circuit according to claim 9 wherein the selected bit pattern for a given address comprises a function of an address bit sequence, and wherein the data generator is arranged to present the selected bit pattern at outputs corresponding to address inputs of the memory.
4. (Previously Presented) The semiconductor integrated circuit according to claim 9 wherein the testing arrangement further comprises an arrangement of multiplexers to selectively connect the memory to the combinational logic components of the integrated circuit, or to the data generator.
5. (Currently Amended) The semiconductor integrated circuit according to claim 9 wherein the testing arrangement further comprises an address generator to generate addresses of the memory to which the selected bit pattern is to be written, the data generator comprising an array of interconnections to transfer the address bit sequence from the address generator to a data input of the memory.

6. (Currently Amended) The semiconductor integrated circuit according to claim 9 wherein the selected bit pattern is a checkerboard pattern in the memory.

7. (Currently Amended) The semiconductor integrated circuit according to claim 9 wherein the selected bit pattern written in the memory is so-arranged so that the memory may be modeled as a simple combinational circuit with the predictable output.

8. (Currently Amended) The semiconductor integrated circuit according to claim 9 wherein the ~~testing arrangement comprises a wrapper circuit~~ of the testing arrangement is configured to selectively preload the memory, or to connect the memory to other components in the integrated circuit.

9. (Currently Amended) A semiconductor integrated circuit comprising a plurality of combinational logic components, a memory and a testing arrangement to configure the memory prior to testing the combinational logic components using one or more scan chains, the testing arrangement comprising:

a data generator internal to the integrated circuit to generate a selected bit pattern to write to the memory;

a switching arrangement to selectively switch the memory input to receive data from the combinational logic components or from the data generator; wherein the switching arrangement and data generator are arranged for the data generator to input the selected bit pattern to the memory prior to testing the combinational logic components of the integrated circuit; and

a testing circuit to test the combinational logic components, using a test pattern, after the data generator has input the selected bit pattern to the memory, wherein the testing arrangement ~~comprises~~ includes a wrapper circuit and includes a control to selectively control the memory to ~~behave as a ROM~~ give a predictable output if the test pattern is supplied to the combinational logic components after writing the selected bit pattern to the memory, wherein the

combinational logic components and memory remain connected and while testing the integrated circuit using the test pattern.

10. (Currently Amended) A semiconductor circuit, comprising:
a memory array;
a plurality of logic elements selectively coupled to the memory array;
a data generator selectively coupled to the memory array to generate a selected bit pattern to write to the memory array;
a switching circuit to selectively couple the logic elements or the data generator to input data into the memory array at a selected time under control of a control circuit; and
a logic testing circuit coupled to the logic elements configured to test the operation of the logic elements based on a test bit pattern that is input to the logic elements and that is different from the selected bit pattern present in the memory array, wherein the logic elements and the memory remain array actively coupled to each other during the test of the operation of the logic elements.

11. (Currently Amended) The semiconductor circuit according to claim 10 wherein said switching circuit includes a multiplexer having one input coupled to the logic elements and another input coupled to the data generator and a control input coupled to the control circuitry to selectively connect the memory array to the logic elements during the test of the operation of the logic elements or to the data generator.

12. (Currently Amended) The semiconductor circuit according to claim 10 wherein said data generator creates the selected bit pattern ~~for loading to~~ load into the memory array prior to ~~testing~~ test of the semiconductor circuit.

13. (Currently Amended) The semiconductor circuit according to claim 12 wherein the selected bit pattern which is selected for a given address in the memory array is a function of an address bit sequence.

14. (Currently Amended) The semiconductor circuit according to claim 10 in which the time selected for coupling the data generator to the memory array is prior to ~~testing of the semiconductor circuit~~ the test of the operation of the logic elements so that the selected bit pattern is input by the data generator into the semiconductor circuit prior to ~~testing~~ the test of the operation of the logic elements.

15. (Previously Presented) The semiconductor circuit according to claim 13 further comprising:

an address generator to generate addresses of the memory array to which the bit pattern is to be written and the data generator includes an array of inner connections to transfer the address bit sequence from the address generator to a data input of the memory array.

16. (Currently Amended) The semiconductor circuit according to claim 13 in which the selected bit pattern which is written to the memory array is selected based on a type of memory to which the selected bit pattern is to be written.

17. (Currently Amended) The semiconductor circuit according to claim 16 wherein the memory array is a RAM.

18. (Currently Amended) The semiconductor circuit according to claim 16 wherein the memory array is a CAM.

19. (Currently Amended) The semiconductor circuit according to claim 10 wherein the control circuit selects a time to control input provided to the memory array and further including a memory array enable circuit to enable the input of data to the memory array prior to ~~testing~~ the test of the operation of the logic elements and to disable data input into the memory array after the selected bit pattern has been written to the memory array and during ~~testing of the semiconductor circuit~~ the test of the operation of the logic elements, such that

during testing the test of the operation of the logic elements, the memory array behaves as a ROM having an output that is usable during the test of the operation of the logic elements.

20. (Currently Amended) A method of testing logic in a same integrated circuit as a semiconductor integrated memory circuit, the method comprising:

switching a memory input with a multiplexer to receive address, data, and control signals, in a first state, from an external interface or, in a second state, from an internal address counter, an internal data generator and an internal test control circuit;

during the second state:

generating an address with the internal address counter for determining an address at which data will be written;

coupling an output of the internal address counter with an input of the internal data generator;

generating a first bit pattern with the internal data generator based upon a value of the internal address counter;

writing the first bit pattern into a memory at the address specified by the internal address counter; and

inputting a second bit pattern, different from the first bit pattern, into the logic to be tested after writing the first bit pattern into the memory; and

testing the logic using the second bit pattern, ~~in a manner that~~ wherein an output of the memory is predictable based on the first bit pattern written therein and is independent of the second bit pattern, said testing the logic including keeping the memory actively coupled to the logic during the testing of the logic to allow the output of the memory to be used during the testing of the logic.

21. (Previously Presented) The method of testing logic in the same integrated circuit as the semiconductor integrated memory circuit according to claim 20, wherein the first bit pattern to be generated comprises a checkerboard pattern.

22. (Previously Presented) The method of testing logic in the same integrated circuit as the semiconductor integrated memory circuit according to claim 21, wherein the memory comprises a Content Addressable Memory.

23. (Currently Amended) The method of claim 20 wherein testing the logic using the second bit pattern, ~~in a manner that~~wherein the output of the memory is predictable based on the first bit pattern written therein includes placing the memory in a state that simulates a combinatorial logic function.

24. (Currently Amended) A method of testing logic elements that are in a same integrated circuit as a memory array, the method comprising:

inputting to the memory array a first pattern of data bits, the first pattern being selected to configure the memory array to operate as a combinatorial logic circuit;

setting the integrated circuit in logic test mode for testing logic that is outside of the memory array;

inputting to the logic a second pattern of data bits, different from the first pattern of data bits in the memory array, as part of testing the logic after the first pattern of data bits is input to the memory array;

receiving output from the memory array as part of and during the testing of the logic, the output of the memory array being predictable based on the first bit pattern and being independent of the second bit pattern input to the logic for the testing of the logic.

25. (Previously Presented) The method according to claim 24 further including:

sending signals via a scan chain between respective logic elements of the logic being tested.